

## The Systematic Study of Korean Dermaptera II Genus *Anechura* Scudder (Forficulidae)

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### INTRODUCTION

*Anechurinae* including *Anechura* is a taxon which remains some taxonomic confusions because the fact is that, firstly the taxonomic limitation by genital character between Forficulinae and Anechurinae is still obscure so that each subfamily would have sometimes both genital forms of *Anechura*- and *Forficula*-type and secondly *Anechura* species have been included some polytypic species that have not still been realized their real status. Therefore it is necessary for the better Systematics to arrange the Formenkreis of this group either in local or in worldwide level.

In the present paper continuing studies on the earwigs of Korea, recent records of Dermaptera are presented, plus older data, either missed or somehow not included in current literature. Among present reporting species *harmandi* type of *A. harmandi* is newly recorded from Korea. The abbreviations are used for the simplification of the morphological terms and localities as like followings;

F/C (Frontal stem/Coronal stem of Epicranial suture), A1 (Antennal Scape/Pedice1 + 1st Flagella), A2 (1st flagella/2nd + 3rd flagella), E/G (Eye/Genae); KG (Kyonggi-do), KW (Kangwon-do), CB (Ch'ungch'ongbuk-do), CN (Ch'ungch'ongnam-do), KB (Kyongsangbuk-do), KN (Kyongsangnam-do), CHB (Chollabuk-do), CHN (Chollanam-do), CJ (Cheju-do).

### SYSTEMATICS

Genus *Anechura* Scudder

종집세벌레속

*Anechura* Scudder, 1876, Proc. Boston Soc. Nat. Hist., 18:289

Type-species: *Forficula bipunctata* Fabricius, 1781.

*Odontopsalis* Burr, 1904, Trans. ent. Soc. Lond., 1904:315.

Type-species: *Odontopsalis harmandi* Burr, 1904.

*Burriola* Semenov, 1908, Rev. Russe d'Ent., 2:159.

Type-species: *Burriola przewalskii* Semenov, 1908.

## T.Y. MOON: The Systematic Study of Korean Dermaptera II

### The Key to Korean *Anechura* species

1. The length of abdomen 3 times longer than that of pronotum, male genitalia as like Fig. 3  
..... *A. japonica*
- The length of abdomen 3 times shorter than that of pronotum, male genitalia as like  
Fig. 7 ..... *A. harmandi*

The key for *A. quelparta* is not available because of material-absence and insufficient informations from Okamoto's original description.

### Classification

#### 1. *Anechura japonica* (Bormans, 1880)

좀집게벌레

*Forficula japonica* Bormans, 1880, Ann. Soc. Espan. Hist. Nat., 9:512.

*Apterygida japonica*: Bormans, 1900, Das Tierreich, 11:114; Matsumura et Shiraki, 1905, J. Sapporo Agr. Col., 2(2):83.

*Anechura japonica*: Burr, 1909, Rev. Russe d'Ent., 3:337; Burr, 1911, Genera Insect., 122: 73; Shiraki, 1928, Insecta Matsumurana, 3(1):16; Saizo, 1934, J. Chosen nat. Hist. Soc., 19:177; Cho, 1969, Illus. Encycl. Fauna & Flora, Korea, 10:810; Steinmann, 1977, Acta Zool. Acad. Sci. Hung., 23(1/2):208.

Type-locality: Central Japan

**Diagnosis:** Size medium, Body color fuscous, leg and forceps ferruginous. The both lateral margins of pronotum and disclosed part of wing yellow or fuscous, 1-4 abdominal tergites fuscous but the remnant sometimes ferruginous.

♂ : Head; Generally triangle-shaped, The posterior margin rounded, Epicranial suture distinct.  $F/C=2.4$ ,  $A1=0.68$ ,  $A2=0.41$ ,  $E/G=0.43$ ; Thorax; Pronotum longer than wider, both lateral margins slightly edged, median longitudinal sulcus distinct, each side of prozona with each concave part, the posterior margin rounded, the lateral margin being made a slight angle. Elytra and wing well developed, the lateral margin not carinate but the posterior margin slightly oblique; Abdomen; Both lateral margins of 3-4 abdominal segments with glandular folds, *forficula*-formed abdomen, The posterior region of ultimate tergite with characteristic processes; Forceps; The upper region of base with small processes, 1/3 part from the base with a big tooth and incurved at 2/3 part; Genitalia; fig. 3.

♀ : very similar to male but the posterior part of ultimate tergite narrower than the anterior part; Pygidium distinct; Forceps straight just before apical part where incurved.

#### Specimens examined:

(Seoul) Uidong, 1 ♀, 25, V, 1978, M.H. Jung, 1 ♀, 14, VI, 1981, Y.H. Lee; Tony-gu-Nüny, 1 ♀, 22, VIII, 1957, J.S. Kang; Dobongsan, 1 ♀, 9, VI, 1982, S.K. Na, 1 ♂, 25, VI, 1983, Y.S. Song; Hong Nung Imöpsihömjang, 1 ♂, 20, X, 1983, H.Y. Han; Chingwansa, 12, VII, 1983, Y.K. Min; (KG) Aenymubong Pogwangsa, 1 ♀, 25, V, 1975, S.I. Oh, 1 ♂, 29, VI, 1975, 1 ♂, 29, VI, 1975, Y.S. Choi, 1 ♂, 24, VI, Y.H. Kim, 1 ♀, 12, VII, 1978, S.H. Nam, 1 ♀, 13, V, 1979, H.M. Lee; Ch'önggyesan, 1 ♀, 13, VI, 1977, Y.J. Choi; Ch'onmasan, 1 ♂, 2 ♀, 10, V, 1975, S.S. Ko, 1 ♀, 13, VI, 1982, M.R. Kim; Yongmunsan, 1 ♀, 31, VII, 1976, J.H. Yu; (KW) Hwach'ön, 1 ♀, 11, VI, 1968, J.K. Oh; Odaesan, 4 ♀, 24, VII, 1958, 1 ♀, 20, VII, 1982,

B.J. Kim, 1 ♀, 20, VII, 1983, T.Y. Moon; Chōmbongsan, 1 ♀, 1, VIII, 1983, 1 ♂, 4, VIII, 1983, 1 ♀, 11, VIII, 1983, T.Y. Moon; Wolchongsan, 1 ♀, 30, VII, 1981, H.O. Cho; Ch'ongpungsa, 2 ♀ ♀, 24, IX, T.Y. Moon; (CB) Kyeryongsan, 1 ♀, 6, VIII, 1973, S.S. Han, 1 ♀, 26, IV, 1983, H.C. Park; (KB) Hwanghaksan, 1 ♀, 3, VI, 1978, H.J. Jung, 2 ♀ ♀, 3, VI, 1978, J.Y. Song, 1 ♀, 4, VI, 1978, C.S. Han; Ullungdo, 1 ♂, 30, VII, 1981, J.S. Park, 1 ♀, 23, VII, 1974, C.W. Kim, 1 ♀, 23, VII, 1974, Y.S. Ju, 2 ♀ ♀, 6, VI, I.Y. Choi; (CHB) Togyusan, 1 ♀, 23, V, 1983, T.Y. Moon, Taedunsan, 1 ♀, 7, VIII, 1970, S.N. Choi; (CHN) Chirisan, 1 ♀, 10, VII, 1978, H.W. Cho, 1 ♂, 10, VII, 1978, M.S. Park, 1 ♀, 30, VII, 1981, J.I. Kim; (CJ) Cheju-up, 1 ♀, 31, VII, 1955, B.J. Lee; Kwanumsa, 1 ♀, 2, VIII, 1955; Hallim, 1 ♀, 1, VIII, 1955, B.J. Lee; Paengnoktam, VIII, 1972, J.I. Kim.

**Distribution:** Eastern Siberia, from the Amur to Vladivostok, Japan, Korea, China (the province Gansu and Szechwan).

**Remarks:** The taxonomical status of *A. japonica* is very obvious. Its closed allied species may be *A. bipunctata* Fabricius, 1876. They are looks similarly but *A. bipunctata* looks stronger and has usually the yellow spots on elytra.

## 2. *Anechura harmandi* (Burr 1904)

흑집게벌레

Fig. 4-7.

*Odontopsalis harmandi* Burr, 1904, Trans. ent. Soc. Lond., 1904:316.

*Anechura harmandi*: Burr, 1910, Proc. U.S. Nat. Mus., 38 (1760):462; Burr, 1911, Genera Insect., 122:73; Shiraki, 1928, Insecta Matsumurana, 3(1):16; Steinmann, 1977, Acet Zool. Acad. Sci. Hung., 23(1/2):208.

*Odontopsalis lewisi* Burr, 1904, Trans. ent. Soc. Lond. 1904:317; Zacher, 1911, Zool. Jahrb., 30:320.

*Anechura lewisi*: Burr, 1911, Genera Insect., 122:73; Shiraki, 1928, Insecta Matsumurana, 3(1):16; Cho, 1969, Illus. Encycl. Fauna & Flora, Korea, 10:810.

**Type-locality:** Japan

**Diagnosis:** : *harmandi* type/Size small, Body color fulvous to fuscous, Leg and forceps yellow to sometimes fulvous.

Head: Generally triangle-shaped, The Coronal stem of Epicranial suture distinct but the Frontal stem indistinct, The posterior margin rounded.  $A1=0.85$ ,  $A2=0.48$ ,  $E/G=0.33$ : Thorax: Pronotum wider than longer, Both sides of anterior margin somewhat carinate, median longitudinal suture distinct. Both sides of elytra carinate and covered slightly at lateral part, the posterior margin oblique and slightly bent: Abdomen; 3-4 abdominal tergites with glandular folds. 1-8 abdominal segments wider but the ultimate tergite abruptly narrowed. 9th abdominal tergite usually invisible. The upper side of forcep-base with some characteristic processes: Forceps; 1/3 part from base with big teeth.

Lewisi type/Size smaller than *harmandi* type. Elytra not stong as well as *harmandi* type, but also both lateral margins edged, forceps more fillious than *harmandi* type, ultimate tergite triangular shaped. genitalia as like Fig. 7.

: Abdominal segment not broad as well as that of *harmandi*-type male but similar to that of *lewisi*-type male. Pygidium distinct. Forceps without any processes or tooth, only straight.

## T.Y. MOON: The Systematic Study of Korean Dermaptera II

### Specimens examined:

#### Harmandi type:

(Seoul) 'Anamdong, 2 ♀♀, 8, V, 1967, J.S. Cho; Namsan, 1 ♀, 15, VI, 1974, D.J. Sim; Kwanaksan, 2 ♀♀, 3, V, 1983, T.Y. Moon; Suraksan, 1 ♀, 3, X, 1980, J.S. Kim; Uidong, 1 ♂, 6, VI, 1961, M.J. Lee; Walker Hill, 1 ♀, 6, VI, 1982, Y.R. Kim; Tobongsan, 1 ♀, 16, VI, K.H. Kim; (KG) Aengmubong Pogwongsa, 1 ♀, 19, VI, 1971, H.J. Lee; 2 ♀♀, 15, VI, 1978, J.Y. Song; Ch'iaksan, 1 ♂, 7, VI, 1982, M.Y. Lee; (KB) Hwanghaksan Chikchisa 1 ♀, 23, VII, 1974, S.H. Nam; 1 ♀, 4, VI, 1978, H.J. Jung; 2 ♂♂, 5, VI, 1978, Y.B. Lee; Sobaeksan Huibangsa, 1 ♀, 22, VII, 1974, Y.S. Ju; 23, VII, 1974, 1 ♀, 23, VII, 1974, J.I. Kim; Mun-guon Se Jae, 1 ♀, 6, VI; Ullungdo, 1 ♀, 13, VII, 1977, H.Y. Han; 1 ♀, 15, VII, 1977, J.W. Lee, 1 ♀, 25 VII, 1981, J.S. Park, 1 ♂, 2, VIII, 1981, J.S. Park, 1 ♀, 12, VIII, 1983, T.Y. Moon; (KN) Pomosa, 1 ♂, 5, VI, 1981, K.J. Jung, 1 ♂, 6, VI, 1981, K.J. Jung, 1 ♂, 6, VI, 1981, K.J. Jung; (CHN) Chogyesan Sonamsa, 1 ♀, 6, VIII, 1976, S.H. Nam, 2 ♀♀, 6, VIII, 1976, C.W. Kim, 1 ♀, 6, VIII, 1976, J.H. Yu; (CJ) Hallsan, 2 ♀♀, 3, VIII, 1955, B.J. Lee, 1 ♀, 1 ♂, 2, VIII, 1959, P.S. Cho, 1 ♀, 2, VIII, 1951, K.R. Lee; Paengnoktam, 1 ♂, 3 ♀♀, 31, VII, 1972, T.I. Kim.

#### Lewisi type:

(Seoul) Uidong, 1 ♂, 19, VI, 1982, J.K. Park; (KG) Wangbangsan, 1 ♂, 15, VI, 1975, Y.S. Choi; Aengmubong Pogwangsa, 1 ♂, 29, VI, 1978, J.H. Kim; Soyosan, 1 ♂, 30, V, 1983, T.Y. Moon; (KW) Chombongsan, 1 ♂, 1, VIII, 1983, T.Y. Moon; (CHN) Chirisan, 1 ♂, 14, VII, 1979, S.H. Park; (CJ) Chejusi, 1 ♂, 1, VII, 1983; Olimok sanjang, 1 ♂, 30, VII, 1972, J.I. Kim.

**Distribution:** Vladivostok, Sachalin, Japan, Korea

**Remark:** Sakai (1973) reported that *A. harmandi* had two typed of harmandi and lewisi morphes. In Korea the harmandi type is first recorded in this present paper.

### 3. *Anechura quelparta* Okamoto, 1924

제주김계백레

*Anechura quelparta*: Okamoto, 1924, Bull. Agr. Exp. Stat. Govern. Gen. Chosen, 1:53; Shiraki, 1928, Insecta Matsumurana, 3(1):17 (Diese Art ist nicht bekannt); Saizo, 1934, J. Chosen nat. Hist. Soc., 19:177 (in list); Cho, 1969, Illus. Ecycl. Fauna & Flora, Korea, 10:810; Steinmann, 1977, Acta Zool. Acad. Sci. Hung., 23(2/3):208 (only citation from Okamoto, 1924).

**Type-locality:** Korea (Cheju-do)

**Distribution:** Korea

**Remarks:** The present authors has no occasion to examine a specimen. From Okamoto's Description (1924) the present authors could not distinguish *A. quelparta* from the large *A. japonica* individuals, because Okamoto did not refer to genital character in his original description but did mainly its color. And from Is. Cheju (*Quelparta*)-collection the present author find that *A. japonica* populations are generally large size which look similar to *A. quelparta* of Okamoto. So the evident status of *A. quelparta* will be discussed after more researches are carried out.

### SUMMARY

3 *Anechura* species were reported and reviewed from Korea. The *harmandi* morph of *A. harmandi* is first recorded in Korea. Simple diagnosis with figures were given for all species.

### REFERENCES

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Okamoto, H., 1924, The Insect fauna of Quelparta, Bull. Agr. Exp. Stat. Govern. Chosen, 1(2): 53-54.  
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Shiraki, T., 1928, Dermaptera aus dem Kaiserreich Japan, Insecta Matsumurana, 3:1-20.  
Steinmann, H., 1977, A study of Palaearctic Anechurinae (Dermaptera: Forficulidae), Acta Zool. Acad. Sci. Hung., 23(12):199-212.

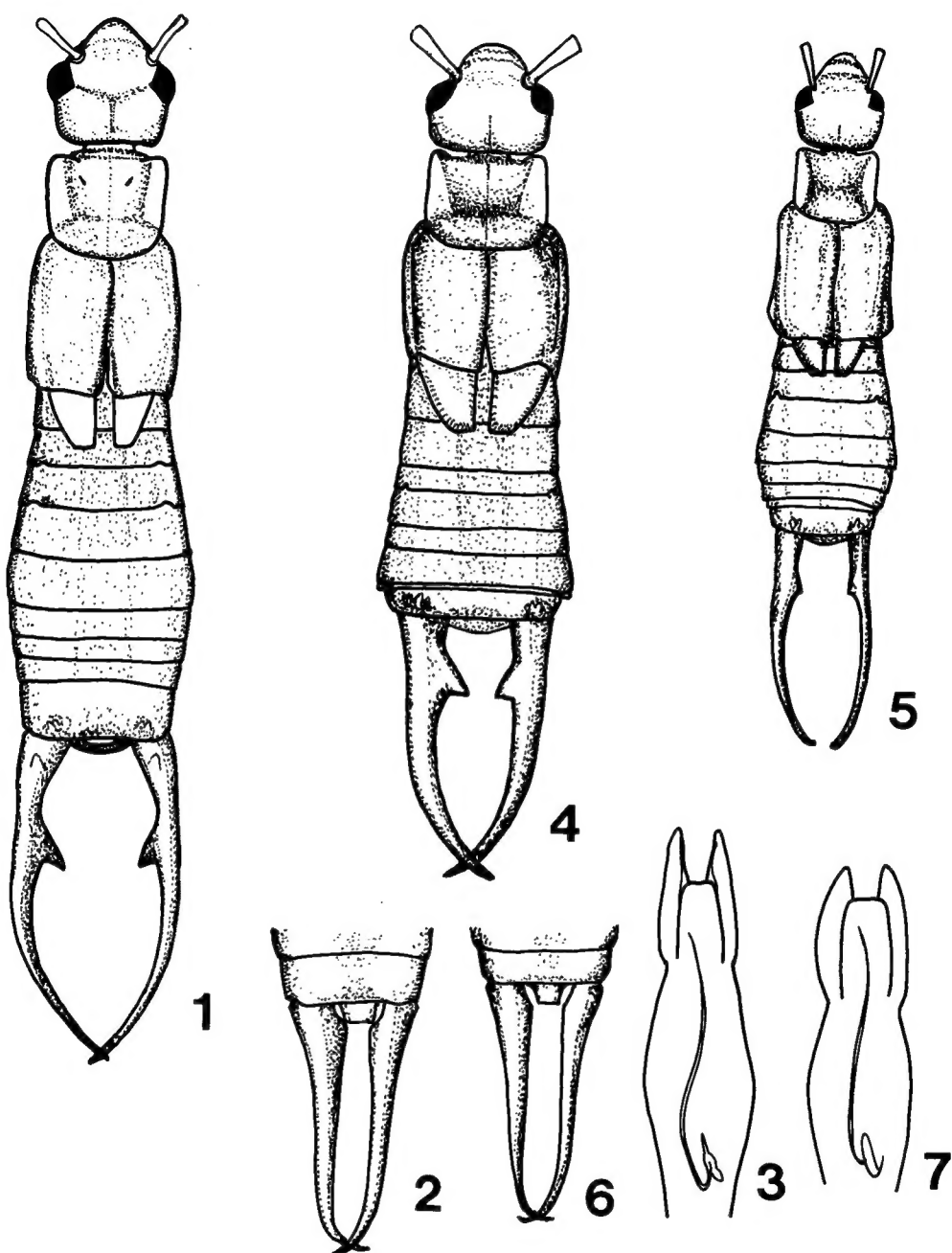


Fig. 1-3, *Anechura japonica*

1, the dorsal vies 2, the ultimate tergite and forceps of female 3, male genitalia

Fig. 4-7, *Anechura harmandi*

4, harmandi type: dorsal view 5, lewisi form: dorsal view 6, the ultimate tergite and forceps of female 7, male genitalia